



Air Force Research Laboratory|AFRL

Science and Technology for Tomorrow's Air and Space Force

Success Story

AFRL DELIVERS C-17 EMERGENCY ESCAPE DOOR TO WARFIGHTER



Through the Advanced Aluminum Aerostructures Initiative (AAAI) program, AFRL is working to cut production costs for advanced aluminum aerospace structures for both the Department of Defense and commercial aircraft companies. AFRL's new C-17 emergency escape door design contains fewer parts and saves manufacturing costs over previous C-17 escape door designs.



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Accomplishment

AFRL partnered with the aluminum producer Alcoa (the primary contractor) and Boeing (the C-17 manufacturer) to redesign the C-17's emergency escape door. The original escape door was an aluminum structure consisting of 113 parts, whereas the new door is forged and high-speed-machined from a single piece of aluminum and has only 21 parts. The process for fabricating the new door will save an estimated 30% in manufacturing costs over the old model.

Background

AAAI endeavors to streamline the design process by involving both the material manufacturer and the airframe manufacturer in all phases of product development. AFRL teamed with Alcoa, Boeing, Lockheed Martin, and Northrop Grumman with the ultimate goal to cut the installed cost of aluminum aerostructures by at least 50% and reduce associated maintenance requirements, achieving lower life-cycle costs while increasing performance. The C-17 escape door was the first AAAI effort.

Air Vehicles
Support to the Warfighter

Additional Information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (05-VA-17)